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Pursuing beauty: socio-cultural and labor-economic determinants of cosmetic surgery consideration among female college students in China

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Abstract

Background Cosmetic surgery has a profound impact on health and other aspects. As a means of enhancing physical attractiveness, it is increasingly being considered by female college students in China. However, current knowledge about the determinants of cosmetic surgery consideration among Chinese female college students still needs to be improved due to the lack of systematic perspectives and large-scale representative data sets. This study aimed to contribute to the literature in these two aspects.

Methods We framed cosmetic surgery consideration as a function of two broad sets of determinants: socio-cultural and labor-economic. We used data from a large, nationally representative sample of female college students in China ($N = 6658$, mean age = 20.3 years).

Results In terms of socio-cultural oriented factors, we found that family socioeconomic status, peers' cosmetic surgery practices, and media exposure were positively associated with the likelihood of considering cosmetic surgery. In terms of labor-economic oriented factors, we found that self-rated physical appearance, higher grades, and expected income after graduation were positively associated with a higher likelihood of considering cosmetic surgery.

Conclusions These findings suggest that the decision-making process for cosmetic surgery among Chinese female college students goes beyond personal factors and is significantly influenced by structural factors.

Keywords Cosmetic surgery consideration, Socio-cultural, Labor-economic, Female college students, China

Introduction

Cosmetic surgery involves various elective procedures that people undergo to enhance their physical appearance in a desirable way [1, 2]. In recent years, with the rapid development of the medical beauty industry and the growing social acceptance of cosmetic surgery, more and more young adults are seeking cosmetic surgery to improve their physical appearance. A recent report showed that the compound annual growth rate of the global cosmetic surgery and procedures market would reach 5.43% between 2022 and 2023, and Asia Pacific will be the fastest-growing market in this field [3]. The

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cosmetic surgery market in China is particularly impressive, growing about six times faster than the global average [4], and is predominantly female and young [5, 6]. While some individuals may experience enhanced body image [7] and contentment with the results of cosmetic surgery [8], there are also potential negative consequences associated with these procedures, including enduring pain, complications, and psychological distress following surgery [8, 9]. Against this background, this study aimed to contribute to the literature by systematically investigating the factors that may influence the decision to undergo cosmetic surgery among female college students in China.

Cosmetic surgery consideration (CSC), a psychocognitive attitude that acts as an antecedent state to the actual practice of cosmetic surgery, has received increasing scholarly attention. On the one hand, understanding CSC among contemporary young people could provide insights into societal trends and norms regarding beauty standards, body image, and self-esteem [10]. On the other hand, because CSC would lead to cosmetic surgery behaviors, understanding CSC can inform healthcare professionals, policymakers, and society at large about the ethical and regulatory considerations surrounding these procedures, ultimately contributing to more informed decision making and patient care.

It is reasonable that multiple factors may combine to impact an individual's CSC. However, a comprehensive evaluation of these factors based on quality survey data remains limited. First, most of the previous studies measured a single or several influencing factors, and few studies systematically explored the influencing factors of CSC from a unified perspective. For example, one study based on a sample of 118 British women showed that social media was associated with cosmetic surgery desire [11]. Another study further measured the effects of body appreciation, media influence and weight status on CSC [10]. But the correlation among the three influencing factors in this study is weak and difficult to unify. Second, most previous studies were built upon datasets that were small in size, low in representativeness, and restricted within a local city. One study, for example, measured 502 Egyptian Muslim women's attitude toward cosmetic procedures [12]. Another study on the factors that influence cosmetic surgery intentions involved 429 women from Italy and they all live in Tuscany [13]. In China, there has also been some related research [1, 14]. As a result, these studies face grave challenges in terms of the generalizability of findings.

To better understand the miscellaneous factors associated with CSC, this study systematically considered CSC as a function of two broad sets of factors: socio-cultural oriented factors and labor-economic oriented factors.

The socio-cultural factors emphasize the combined influence of family members, peers, and the media, essentially following the perspective of the Tripartite influence model in understanding the formation of body image [13, 15]. The Tripartite influence model, developed by Thompson, is a model about the influencing factors of body image and eating disturbance, which emphasizes that peers, parents and media have a direct influence on individuals' dissatisfaction with body image [16]. This model has been validated in Hungary, Japan, Australia and France [17–19]. These influences can trigger individuals' body dissatisfaction and even lead to eating disorders, through intermediary mechanisms such as social comparison and ideal internalization processes [20]. In this study, we specifically considered family socioeconomic status, peers' cosmetic surgery practices, and media exposure as factors along the socio-cultural dimension.

The labor-economic oriented factors bear close affiliation to the labor-economics literature on the premium and penalty induced by physical attributes of individuals in the labor market context. Labor economists paid first attention to the impact of physical appearance on income and employment [21]. When incorporating physical appearance into wage equations, it has been observed that individuals with average looks earn higher wages than those with below-average appearance but lower than those with exceptionally attractive features. This phenomenon, known as the "premium for beauty" and "penalty for ugliness", has been repeatedly confirmed in subsequent research [22–24]. In addition, proximity to the labor market may have an impact on CSC for college students. For example, a previous study suggested the pressure of job competition can lead young students, especially female college students, to try to stand out in the job market through cosmetic surgery [6]. Accordingly, students who are closer to entering the labor market, such as upcoming graduates and those with part-time work experience, may experience a heightened awareness of employment competition pressures. Building upon prior research [6, 25], we considered self-rated physical appearance, grades, plans to pursue a higher degree, part-time off-campus or internship experience, and expected income after graduation as factors along the economic dimension.

In summary, the objective of this study was to systematically investigate the potential factors that may be related to CSC of female youth in China. To this aim, we analyzed data from a nationally representative sample of female college students, which can facilitate the generalizability of our empirical findings.

Method

Participants

Participants were collected from a national survey of Chinese college students in 2018. The survey was conducted by the Institute of Sociology at the Chinese Academy of Social Sciences using a multi-stage stratified random sampling method. First, institutions were selected as primary sampling units, divided into three sampling layers based on institution level, discipline type, and geographical distribution. Institutions were then randomly chosen within each stratum. Second, majors were chosen as secondary sampling units. Within the selected schools, 8 majors were randomly sampled from each school. The number of strata, the number of selected institutions within each stratum, and the number of selected majors within each institution, were discussed and determined by the principal investigators within the research team, taking a comprehensive consideration of the appropriate final sample size, the diversity of academic disciplines within the sample, and budget constraints. Third, classes were selected as tertiary sampling units. Within the chosen majors, one class was randomly selected from each grade.

The data were collected in November and December 2018. Student participants in each sample class were gathered together in the same classroom and then asked to independently complete a questionnaire designed for the study using their own smartphones. In order to prevent a single respondent from submitting the questionnaire repeatedly, the questionnaire set up a login system where each respondent can only use his/her unique student ID, and a digital device can only be accessed on one student ID. A total of 13,663 respondents completed the survey. After excluding male students ($N=6364$) and further excluding a small proportion of cases with missing values on related variables ($n=641$), the final sample size for analysis was 6658 female college students.

Measures

Cosmetic surgery consideration (CSC)

CSC was assessed with a single question drawn from the classic 5-item Consider subscale of the Acceptance of Cosmetic Surgery Scale [26]: "In the future, I could end up having some kind of cosmetic surgery." This question has been used in previous research with adolescents from different countries, such as the Netherlands [27] and China [2, 14, 28]. To better relate the question to emerging adulthood, we modified it in terms of its time frame and asked specifically: "In the next three years, I could end up having some kind of cosmetic surgery." Responses were dichotomous, with 0 indicating "no" and 1 indicating "yes".

Socio-cultural oriented and labor-economic oriented factors

Borrowing insights from the Tripartite influence model about body image and eating disturbance [16], this study captured the socio-cultural oriented factors from three aspects: family socioeconomic status, peers' cosmetic surgery practices, and media exposure. Family socioeconomic status included parental education and parental income. Parental education was measured by taking the highest level of education reported by either the mother or the father [29]. The original classification included 9 schooling stages ranging from "no education at all" all the way up to "postgraduate and above". To simplify, we collapsed them into four categories: "elementary school and below", "junior high school", "senior high school", and "college and above". Parental income was assessed by self-report by asking, "What is your parents' total monthly income at present?". The original classification included 9 income levels, but for simplicity, we combined them into four categories: "below 3000RMB", "3001 to 9000RMB", "9001RMB and above", and "unclear". Peers' cosmetic surgery practices were evaluated by self-report of the number of peers who had experienced cosmetic surgery and were classified into four categories: "none", "1–5 persons", "6 persons and more", and "unclear". Media exposure refers to watching live broadcasts through Internet channels, and was measured specifically by two questions: (1) "Do you watch live streaming almost every day?(1 = Yes)"; (2) "Are you a regular viewer of beauty live streaming specifically? (1 = Yes)".

The labor-economic oriented factors were captured by self-rated physical appearance, proximity to the labor market, and expected income after graduation. Self-rated physical appearance was measured by self-rated body shape (1 = overweight and 0 = underweight/medium) and self-rated appearance level. Self-rated appearance level was collected on a scale of 1–10, which was classified into three groups: poor (1–5), average (6–8), and good (9–10). Proximity to the labor market was measured by the respondent's current grade level, plan to pursue a higher degree (1 = Yes), and part-time off-campus or internship experience (1 = Yes). Considering the differences in the academic system between junior college and undergraduate, the grades have been simplified into three categories: 1st year, 2nd year, 3rd and 4th year. Expected income after graduation was measured by the self-reported by asking, "What is your expected monthly earning from your first job after graduation?", and included three categories: lowest 50%, upper middle 25%, and highest 25%.

Control variables

To obtain a better and clearer understanding of the factors influencing CSC among female college students,

a few other variables were included in regression models. Social demographic characteristics included family residence (1 = Rural, 2 = Township, 3 = County, 4 = City), Hukou before college (1 = Non-agricultural, 0 = agricultural), school type (1 = Undergraduate, 0 = Non-undergraduate), self-rated health, and body mass index (BMI). The original score range of self-rated health was 1–10, which was divided into three categories: poor (1–4), average (5–8), and good (9–10). We also included "Have you had cosmetic surgery (1 = Yes)" and "Have you ever had a romantic relationship (1 = Yes)" in the regression analysis. BMI is a continuous variable, and it can have extreme values. To reduce the potential leverage effect of a few extremely large values, we winsorised the values at the 99th percentile. Table 1 presents descriptive statistics of the variables in our sample.

Statistical analysis

Descriptive statistics were reported as mean (SD) for continuous measures, and % (n) for categorical measures. Then, chi-square tests were used to examine the distribution of CSC among female college students across socio-cultural oriented subgroups and labor-economic oriented subgroups. Finally, multivariate regression analysis explored the factors influencing CSC among female college students. This part sequentially estimates three regression models: Model 1 includes only the socio-cultural oriented variables; Model 2 includes only the labor-economic oriented variables; and Model 3 includes variables from both dimensions into the model. In doing so, we could see whether and how the socio-cultural oriented factors and the labor-economic factors may combine to shape the consideration of cosmetic surgery. Since our dependent variable was categorical, we employed the logit models.

Results

Tables 2 and 3 present the bivariate associations of CSC with socio-cultural oriented and labor-economic oriented factors.

Table 2 focuses on socio-cultural oriented factors. These influencing factors encompassed family socioeconomic status, peers' cosmetic surgery practices, and media exposure. Firstly, in terms of family socioeconomic status, there was a consistent upward trend in CSC with the increase in parental education and parental income. When the monthly income of parents reaches 9000 RMB or above, the proportion of CSC among female university students is 11.9 percent, more than twice that of those with incomes below 3000 RMB. Additionally, when female college students whose parents' education level was below elementary school were compared with female college students whose parents were college or above, the proportion of CSC also increased from 4.9 percent to 10.5 percent.

Secondly, the higher the number of peers who had cosmetic surgery, the higher the CSC of female college students. For instance, When the number of peers who had plastic surgery was zero, the proportion of CSC among female college students was only 3.8%, while when the number of peers who had cosmetic surgery was six or more, the proportion increased to 22.2%.

Thirdly, media exposure included frequency of exposure and content of exposure. The results showed that female college students with high media exposure had higher CSC. Specifically, the higher the CSC of female college students who watched live streaming basically every day and frequently watched beauty live streaming. The proportion of CSC among female college students who frequently watched beauty-related live streams (13.0%) was approximately 1.9 times higher than that of their counterparts who don't (7.0%).

Table 3 focuses on labor-economic oriented factors. These influencing factors included self-rated physical appearance, proximity to the labor market, and expected income after graduation. First, female college students who rated their physical appearance lower had higher CSC. For instance, among female college students with overweight body shapes, the proportion of CSC was 10.3%. In contrast, for those with an underweight or moderate body shape, the proportion of CSC was 7.7%. Secondly, there was a higher proportion expressing CSC among senior female college students, those planning to pursue advanced degrees, and those with internships or part-time work experiences.

Table 4 presents the logit model results for factors influencing CSC among female college students. Note that all models were controlled for various covariates, including social demographic characteristics, self-reported health, BMI, cosmetic surgery experience, and romantic relationships.

Model 1 shows the coefficients of socio-cultural oriented factors. The results demonstrated that socio-cultural factors significantly influenced CSC. Firstly, in terms of family socioeconomic status, the patterns of influence of parental income and parental education on female college students' CSC were not entirely consistent. Specifically, taking parental income of 0–3000 RMB as the reference group, female college students with Parental income of 3001–9000 RMB and more than 9000 RMB have significantly higher possibilities of having CSC. But, the influence of parental education on female college students' CSC showed an inverted U-shape, with female college students having the highest CSC when their parental education was in senior high school. Secondly, regarding peers' cosmetic surgery practices, the higher the number,

Table 1 Descriptive statistics ($N = 6658$)

Variables		% / mean	n / SD
CSC	No	91.4	6087
	Yes	8.6	571
Parental income (RMB)	Below 3000	32.4	2156
	3001 to 9000	34.4	2291
	9001 and above	19.3	1282
	Unclear	14.0	929
Parental education	Elementary and below	14.2	945
	Junior high	36.6	2439
	Senior high	24.5	1633
	College and above	24.6	1641
Peers' cosmetic surgery practices	None	31.5	2100
	1 to 5 persons	40.6	2702
	6 persons and more	4.3	284
	Unclear	23.6	1572
Watched live streaming almost every day	No	96.1	6400
	Yes	3.9	258
Always watched beauty live streaming	No	73.3	4882
	Yes	26.7	1776
Self-rated body shape	Underweight/medium	67.1	4465
	Overweight	32.9	2193
Self-rated appearance level	Poor	34.2	2277
	Average	54.9	3653
	Good	10.9	728
Grade	1st year	30.2	2008
	2nd year	28.7	1910
	3rd year and 4th year	41.2	2740
Plan to pursue a higher degree	No	90.7	6037
	Yes	9.3	621
Have part-time off-campus or internship experience	No	45.3	3019
	Yes	54.7	3639
Expected income	Lowest 50%	53.7	3573
	Upper middle 25%	21.2	1412
	Highest 25%	25.1	1673
Family residence	Rural	43.5	2893
	Township	10.3	687
	County	15.8	1051
	City	30.4	2027
Hukou before college	Agricultural	57.3	3812
	Non-agricultural	42.7	2846
School type	Non-undergraduate	45.4	3022
	undergraduate	54.6	3636
Self-reported health	Poor	9.4	624
	Average	67.0	4458
	Good	23.7	1576
BMI scores		21.3	5.6
Have cosmetic surgery experience	No	97.1	6468
	Yes	2.9	190
Have a romantic relationship	No	37.5	2499
	Yes	62.5	4159

Data are presented as mean (SD) for continuous measures, and % (n) for categorical measures
CSC Cosmetic surgery consideration

Table 2 Cross-tabulations of socio-cultural oriented factors and CSC

Socio-cultural oriented factors	CSC, %		χ2
	Yes	No	
Parental income (RMB)			40.2[a]
Below 3000	5.8	94.2	
3001 to 9000	8.9	91.1	
9001 and above	11.9	88.1	
Unclear	9.5	90.5	
Parental education			39.6[a]
Elementary and below	4.9	95.1	
Junior high	7.3	92.7	
Senior high	10.7	89.3	
College and above	10.5	89.5	
Peers' cosmetic surgery practices			194.6[a]
None	3.8	96.2	
1 to 5 persons	12.4	87.6	
6 persons and more	22.2	77.8	
Unclear	5.9	94.1	
Watched live streaming almost every day			18.3[a]
No	8.3	91.7	
Yes	15.9	84.1	
Always watched beauty live streaming			60.6[a]
No	7.0	93.0	
Yes	13.0	87.0	

CSC Cosmetic surgery consideration

N = 6658

[a] Represents statistical significance at the 0.001 level

Table 3 Cross-tabulations of labor-economic factors and CSC

Labor-economic factors	CSC, %		χ2
	Yes	No	
Self-rated body shape			12.5[a]
Underweight/medium	7.7	92.3	
Overweight	10.3	89.7	
Self-rated appearance level			17.8[a]
Poor	10.2	89.8	
Average	8.2	91.8	
Good	5.4	94.6	
Grade			17.6[a]
1st year	6.5	93.5	
2nd year	8.7	91.3	
3rd year and 4th year	10.0	90.0	
Plan to pursue a higher degree			0.11
No	8.6	91.4	
Yes/unclear	8.2	91.8	
Have part-time off-campus or internship experience			14.2[a]
No	7.2	92.8	
Yes	9.8	90.2	
Expected income			7.7[b]
Lowest 50%	8.0	92.0	
Upper middle 25%	8.1	91.9	
Highest 25%	10.2	89.8	

CSC Cosmetic surgery consideration

N = 6658

[a] Represents statistical significance at the 0.001 level, [b]Represents statistical significance at the 0.05 level

the more likely female college students are to have CSC. Finally, regarding media exposure, a higher level of media exposure was associated with an increased likelihood of female college students considering cosmetic surgery. Specifically, the CSC of female college students who watched live streaming almost every day and frequently watched live beauty streams was significantly higher than that of those who did not.

Model 2 shows the coefficients of labor-economic oriented factors. The results showed that most of economic factors' effects on CSC were significant. Firstly, in terms of self-rated physical appearance, obese people with self-rated body shapes were more likely to have CSC. Moreover, compared to those with a high self-rated appearance level, individuals with a lower or moderate self-rated appearance level showed a greater likelihood of CSC. Secondly, in terms of Proximity to the labor market, a higher grade was associated with a higher likelihood of CSC, and having an internship or part-time job significantly increased CSC, whereas planning to pursue a higher degree was not significantly associated with CSC. Lastly, in terms of expected income after graduation, with the lowest expected income as the reference group, female college students with the highest expected income were significantly more likely to have CSC.

Model 3 included both socio-cultural oriented and labor-economic oriented factors. The results revealed that the impact of grade on CSC has shifted from significant to non-significant. Meanwhile, the coefficient for individuals with expected income of highest 25% was insignificant. However, on the whole, the results of Model 3 are basically consistent with those of Model 1 and Model 2, indicating that socio-cultural oriented factors and labor-economic oriented factors had independent effects on CSC.

Discussion

The saying "Do not judge a book by its cover" may be metaphorically true. Nevertheless, people often judge a book by its cover, which, if well-designed, can give an immediate impression of its content, style, and quality. In modern, meritocratic societies, the logic of the book cover is also evident in the evaluation of a person's

Table 4 Logit models estimating factors influencing CSC among female college students

	Model 1	Model 2	Model 3
Socio-cultural oriented factors			
Parental income			
Below 3000 (ref.)			
3001 to 9000	0.32* (0.13)		0.30* (0.13)
9001 and above	0.44** (0.16)		0.44** (0.16)
Unclear	0.29+ (0.16)		0.26+ (0.16)
Parental education			
Elementary and below (ref.)			
Junior school	0.25 (0.18)		0.26 (0.18)
Senior school	0.52** (0.19)		0.55** (0.19)
College and above	0.35 (0.21)		0.37+ (0.22)
Peers' cosmetic surgery practices			
None (ref.)			
1 to 5 persons	1.03*** (0.13)		0.97*** (0.13)
6 persons and more	1.53*** (0.19)		1.47*** (0.19)
Unclear	0.39* (0.16)		0.35* (0.16)
Watched live streaming almost every day (1 = Yes)	0.57** (0.19)		0.52**(0.19)
Always watched beauty live streaming (1 = Yes)	0.46*** (0.10)		0.47*** (0.10)
Labor-economic oriented factors			
Self-rated body shape (1 = Overweight)		0.31** (0.10)	0.28** (0.10)
Self-rated appearance level			
Good (ref.)			
Average		0.44* (0.18)	0.37* (0.18)
Poor		0.67*** (0.19)	0.68*** (0.19)
Grade			
1st year (ref.)			
2nd year		0.22+ (0.13)	0.14 (0.13)
3rd year and 4th year		0.32** (0.12)	0.20 (0.12)
Have part-time off-campus or internship experience (Yes = 1)		0.24* (0.10)	0.22* (0.10)
Plan to pursue a higher degree (No = 1)		-0.14 (0.16)	-0.13 (0.16)
Expected income			
Lowest 50% (ref.)			
Upper middle 25%		0.16 (0.13)	0.12 (0.13)
Highest 25%		0.33* (0.13)	0.22 (0.13)
Constant	-3.596*** (0.251)	-3.580*** (0.263)	-4.574*** (0.324)
N	6658	6658	6658
LR chi2	390.54***	270.45***	431.77***
Log likelihood	-1752.10	-1813.04	-1732.38
Pseudo R^2	0.1002	0.0694	0.1108

In parentheses are standard errors

CSC Cosmetic surgery consideration

$+p<0.1$, $*p<0.05$, $**p<0.01$, $***p<0.001$

physical appearance. There is a wealth of empirical evidence on the material and non-material returns to physical attributes. For example, several seminal papers in labor economics have confirmed that "beauty pays" in the sense that physically attractive individuals are more likely to be employed and earn more [17, 30, 31]. Besides non-material outcomes, psychological studies have linked physical attractiveness to subjective well-being, social interactions in general, and romantic relationships in particular [32, 33]. In addition, recent sociological research suggests that physical attractiveness may interact with socio-institutional factors such as race and

gender to exert complex effects on social stratification patterns [34].

To a large extent, a person's physical appearance is biologically stable, which limits the individual's ability to make physical changes easily. With the rapid development of societal aesthetic norms and the cosmetic surgery industry, however, cosmetic surgery as a means of improving physical appearance is increasingly embraced by the young population, particularly female college students. The profound impact of cosmetic surgery on health and other aspects makes it necessary to understand better the factors shaping people's cosmetic surgery motivations. This study systematically analyzed the factors associated with CSC of female college students based on two theoretical perspectives, socio-cultural and labor-economic, using data from a recent large-scale, nationwide survey in China.

Based on the socio-cultural perspective, we found that female college students with higher family socioeconomic status, more cosmetic surgery practices of peers, and higher media exposure were more likely to have CSC. These findings were in line with past studies that have consistently documented that family, peers, and the media were important factors in influencing individuals to perceive and change their body image [35]. First of all, young people's values are easily influenced by their family of origin, and family influence is positively correlated with CSC [13]. For example, studies have shown that families that focus on appearance are more likely to cause eating disorders and body dissatisfaction in their daughters [36], and when their parents are more concerned about appearance, they are more likely to undergo cosmetic surgery and express a desire for more cosmetic surgery [37]. In addition, a large number of studies have shown that the higher the socioeconomic status, the more likely the individual and his family are to participate in physical exercise, and the more opportunities to manage and control the body [35, 38]. But, with lower socioeconomic status, parents and relatives are more likely to invest less in and pay less attention to their children's development because of heavier life pressure [39]. These views are basically consistent with the results of this study, female college students with higher family socioeconomic conditions have stronger CSC. However, an Italian study showed that family has no significant effect on CSC of women, which may be because the average age of the study participants was 33 years old, and women at this stage were less dependent on family and more independent than female college students [13]. Second, peers, as primary companions in daily interactions, play a significant role in influencing individuals' health behaviors related to body management, such as weight loss, muscle gain, dieting, and binge eating [40, 41]. For instance, past studies have shown that alternative experiences of cosmetic surgery increase an individual's familiarity with cosmetic surgery and reduce negative perceptions of cosmetic surgery [42, 43]. Specifically, friend communication was associated with positive attitudes toward cosmetic surgery [44]. Third, media is a conduit for messages depicting beauty ideals [45], and the internalization of beauty ideals affects how women perceive themselves and whether they adopt strategies to change their appearance [10]. That is, more time spent on media leads individuals to engage in more frequent appearance comparisons and exhibit a heightened interest in cosmetic surgery [11]. This finding was generally consistent with previous findings of several studies [11, 46–48].

Based on the labor-economic perspective, we found that female college students with low self-rated physical appearance, closer to the labor market, or higher expected income were more likely to have CSC. First, female college students with low self-rated of physical appearance were more likely to have CSC. This was consistent with previous findings that people with negative perceptions of body image and those who are dissatisfied with their appearance are more likely to have CSC [24, 49]. Second, although college students have not yet fully entered the labor market, the actual "beauty premium" and "ugliness penalty" in the labor market may be internalized through part-time jobs and internships, influencing female college students' CSC. The closer students were to the labor market, the more intuitive they felt the pressure of employment competition. Under the pressure of competition, more and more young students, especially female college students, tried to secure their future positions in job market through cosmetic surgery [6]. However, whether female college students plan to study for a higher degree has no significant impact on CSC, which may be related to the admission interview. Because interviews are required to pursue higher degrees in the Chinese education system, students planning to pursue further education may also be concerned about their appearance and want cosmetic surgery to improve their competitiveness in the interview. Third, female college students have higher income expectations and have higher CSC. This may be influenced by the "beauty premium", which believes that income can be increased through cosmetic surgery [24].

The study has several limitations. First, the outcome variable, CSC, was obtained by asking, "Do you plan to have a cosmetic surgery in the next three years?". This question might only partially capture the CSC of respondents. Cosmetic surgery has miscellaneous types, yet college students may have varying levels of understanding regarding cosmetic surgery. Some of them may have difficulty determining whether a particular

procedure can fall within the domain of cosmetic surgery. Unfortunately, the questionnaire did not offer a clear definition of cosmetic surgery and some example types. Second, since the primary aim of this study was to delineate the broad patterns relating socio-cultural factors and labor-economic factors to CSC, the common practice focusing on the specific causa-and-effect relationship between a particular factor (e.g., media exposure) and CSC was not conducted. Further, the exploration of underlying mechanisms behind the associations was beyond the current study's scope, and future studies may proceed in these directions. In addition, college students' allowance may affect their perception of their body and their willingness to undergo cosmetic surgery. If this is the case, allowance should be included in the control variable. However, due to the limitation of this data, allowance was not controlled. Finally, we were fully aware that the measures selected in the current study to indicate our key constructs, i.e., socio-cultural and labor-economic factors, may not be complete or sufficient. In principle, standardized instruments with high reliability and validity are comparatively better for such purposes.

Despite the limitations, the findings of the present study have important practical implications. Firstly, it is important to help the government and the education sector to be aware of the fact that both socio-economic and labour-economic factors have a significant impact on the CSC of female college students. As far as China is concerned, career guidance has always been an important part of university education, but little attention has been paid to the values of physical appearance. In order to shape the CSC of female college students in a more desirable way, it would be beneficial if more focused efforts were made to help them establish more objective and positive values of physical appearance, which could be incorporated into the university's future curriculum. Secondly, given the research background, this study also provides an aid to further study of cross-national comparisons.

Conclusions

This study systematically explored the determinants of cosmetic surgery consideration (CSC) among Chinese female college students, using data from a large, nationally representative sample. Our findings reveal that both socio-cultural factors—such as family socioeconomic status, peers' cosmetic surgery practices, and media exposure—and labor-economic factors—such as self-rated physical appearance, academic performance, and expected income after graduation—significantly influence CSC. Specifically, higher parental income, greater peer influence, and frequent media consumption were linked to increased CSC. Additionally, students with lower self-rated physical appearance, higher grades, and higher expected income were more likely to consider cosmetic surgery. These results underscore that the decision to consider cosmetic surgery is not merely a personal choice but is deeply embedded in broader social and economic contexts. For policymakers and educators, these insights highlight the need for interventions that promote healthy body image and self-esteem while addressing societal pressures that drive the desire for cosmetic enhancements. Future research may conduct cross-cultural comparisons to understand how different societal contexts can shape the influences of socio-cultural and labor-economic factors on CSC.

Institutional review board statement

The study was conducted in accordance with the declaration of helsinki and approved by the Institute of Sociology, Chinese Academy of Social Sciences.

Informed consent statement

Informed consent was obtained from all participants involved in the study.

Authors' contributions

Conceptualization, Y.Z.; formal analysis, Y.Z.; investigation, B.L.; methodology, Y.Z.; software, Y.Z.; supervision, Y.Z.; writing—original draft, M.J.; writing—review & editing, Y.Z.; M.J.; K.L. All authors have read and agreed to the published version of the manuscript.

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Availability of data and materials

Data are available at http://www.pscus.cn/menu2.jsp?langsel=CN, with the permission of the Chinese Academy of Social Sciences.

Declarations

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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